DOCUMENT RESUME

ED 474 383 UD 035 534

AUTHOR	Gilstrap, Samuel C.
TITLE	An Evaluation of the Effectiveness of Federal Class Size Reduction in the Los Angeles Unified School District: Does Class Size Influence Teacher-Student Interaction in Secondary Classrooms?
INSTITUTION	Los Angeles Unified School District, CA. Program Evaluation and Research Branch.
REPORT NO	LAUSD-PARD-141
PUB DATE	2003-03-06
NOTE	43p.; For the implementation evaluation, see UD 035 484.
PUB TYPE	Reports - Evaluative (142)
EDRS PRICE	EDRS Price MF01/PC02 Plus Postage.
DESCRIPTORS	*Class Size; *Classroom Environment; Discussion (Teaching Technique); English; Federal Legislation; *Feedback; Grade 8; Middle Schools; Student Centered Curriculum; Teacher Qualifications; *Teacher Student Relationship
IDENTIFIERS	Los Angeles Unified School District CA

ABSTRACT

The federal Class Size Reduction Program, first implemented in California's Los Angeles Unified School District in 1999-2000, included a component targeting eighth grade language arts classrooms for mandatory reduction to a minimum of 20 students per classroom. Implementation evaluation showed that average class size was below 20. This study examined levels of instructional feedback quality, discussion quality, and student-centered learning in a sample of middle school classrooms. Teachers described their learning goals for activities planned during the observation and how they had planned to assess the extent to which the goals had been met, then researchers observed them teaching. Data collected from 55 middle school English classes indicated that incidents of high quality instructional feedback and individualized instruction occurred in a small number of smaller classrooms and never occurred in larger classrooms. Teacher qualifications (years of experience and credential status) were unrelated to teaching practice in smaller and larger classrooms. Reduced class sizes did not directly impact the nature of teacher practice observed in these secondary classrooms, consistent with research on class size reduction in elementary classrooms. Two appendices present rubrics used to rate lesson quality in observed classrooms and to assess instructional orientation. (Contains 15 references.) (SM)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 474 383

EVALUATION OF THE EFFECTIVENESS OF FEDERAL CLASS SIZE REDUCTION IN THE LOS ANGELES UNIFIED SCHOOL DISTRICT: DOES CLASS SIZE INFLUENCE TEACHER-STUDENT INTERACTION IN SECONDARY CLASSROOMS?

Samuel C. Gilstrap

Los Angeles Unified School District
Program Evaluation and Research Branch

Planning Assessment and Research Division Publication No. 141

March 6, 2003

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

W. Renfroe
Los Angeles Unified School District

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

UD 035 534

Table of Contents

Executive Summary iii

Introduction 1

Evaluation of Federal Class Size Reduction in LAUSD 3

Previous Research on the Effects of Reducing Class Size 3

How the Data Influence the Current Effort 7

Class Size Reduction in LAUSD Middle School English Classrooms: Analysis and Findings 9

Method 9

Analysis of Classroom Ratings 14

A Closer Look at Classroom Environments 18

Conclusion 27

References 29

Table 1: Summary of a Small Classroom Rated High on Feedback and Student Centered Instruction 32

Table 2: Summary of a Small Classroom Rated Low on Feedback and Containing No Student-Centered Instruction 33

Table 3: Summary of a Large Classroom Rated Low on Feedback and Having No Evidence of Student-Centered Instruction 35

Appendix A: Rubrics Used to Rate Lesson Quality in Observed Classrooms 37

Appendix B: Rubric Used to Assess Instructional Orientation 38

Executive Summary

The Federal Class Size Reduction (FCSR) Program, first implemented in the Los Angeles Unified School District in the 1999/2000 school year, included a component that targeted eighth grade language arts classrooms for mandatory reduction to a maximum enrollment of 20 students per classroom. An implementation evaluation of the program completed by the Program Evaluation and Research Branch (PERB) showed that the average class size for eighth grade English and ESL classrooms was below 20, with about 70% of the classes having between 11 and 20 students-per-teacher and the remaining 30% having from 21 to 29 students-per-teacher enrolled. The degree of program implementation having been established, PERB examined program effectiveness by observing teacher and student behavior in a sample of seventh and eighth grade classrooms ranging in size.

Previous research on the effectiveness of class size reduction (CSR) indicates that reducing class sizes has a strong influence on student achievement, though the precise reasons why are not fully understood. The few classroom observation studies that have been conducted to date suggest that teachers having fewer students to manage spend less time on discipline and develop a more intimate knowledge of students' learning capabilities. The latter has been characterized as student-centered teaching or individualized instruction by some researchers and has been shown to vary in small classrooms while scarcely if ever being observed in larger classrooms. Based on these findings, the present study examined levels of instructional feedback quality, discussion quality, and student-centered learning in a sample of middle school classrooms. Following are some of the principal findings of the present research:

- Incidents of high quality instructional feedback and individualized instruction occur in a small number of smaller classrooms and never in larger classrooms, supporting the notion that smaller classrooms facilitate the use of such tools in instruction.
- Teacher qualifications, i.e., years of experience and credential status, are unrelated to teaching practice in smaller and larger classrooms.
- Reduced class sizes do not directly impact the nature of teaching practice observed in secondary classrooms, consistent with research on class size reduction in elementary school classrooms.

Based on the findings of the present study, it is recommended that future secondary CSR programs be supplemented with professional development for program-targeted teachers designed to maximize the benefits of the funds that are invested in CSR. Future research should examine teacher interview data and student standardized test scores in addition to classroom observations to examine comprehensively the links between CSR and student achievement gains.

Evaluation of the Effectiveness of Federal Class Size Reduction in the Los Angeles Unified School District:

Does Class Size influence Teacher-Student Interaction in Secondary Classrooms?

Federal Class Size Reduction began during the Clinton Administration as an effort to raise student achievement on a national level (CDE, 1999). Following a number of proposals made by the White House, the U.S. Congress passed legislation to provide states with funding to be used for class size reduction, specifically in terms of recruiting and hiring teachers as well as enhancement of professional development programs. Congress allocated $1.2 billion from the federal budget for use by school districts in the 1999/2000 academic year, of which California's portion was roughly $129 million. Of that amount, the share of funding that went to the Los Angeles Unified School District (LAUSD) was roughly $26.3 million. In anticipation of the 1999/2000 year, the district made plans to use the funding to reduce class sizes for grade 3-4 combinations and eighth grade language arts classes as well as to augment teacher recruitment, professional development programs, and support for emergency-permitted teachers.

In June 1999, the Los Angeles Unified School District Board of Education approved the district's proposal to implement the FCSR program in two phases. In the first phase, the district would follow the rules of FCSR legislation by ensuring that all classes in grades 1-3, including grade 3-4 combinations, are reduced to 20:1 and that all emergency teachers for grades 1-3 be provided with support needed to attain fully credentialed status. Once the first phase was completed, the second phase would be to use remaining funds for the following purposes: 1) to reduce class size in all eighth grade language arts (English and advanced ESL) classes to a 20:1 ratio; 2) to provide customized training to incoming California Class Size Reduction teachers in grades 3-4 combination classes as well as eighth grade; 3) to provide assistance and support for emergency credentialed teachers in kindergarten, grades 4 and 5, and secondary

English/advanced ESL; 4) to provide reading coaches to selected schools needing support for CSR teachers in grades K-3; 5) provide coordination of and support for credentialing programs; and 6) to enhance teacher recruitment activities. The proposal emphasized that the goals of the FCSR program extend beyond mere class size reduction in that quality of teaching as evidenced by teacher expertise was also a major program component.

In May 2000, an LAUSD Board informative stated that during 1999/2000, the district had indeed accomplished its goals to: 1) reduce class sizes to 20:1 in grades K-3, grade 3-4 combinations, and eighth grade language arts classes; 2) provide assistance and support to all grades 1-3 emergency credentialed teachers, including preparation for MSAT and Praxis exams; and 3) expand teacher recruitment practices. In the same informative, it was proposed that the district use anticipated FCSR funding, amounting to roughly $28.6 million, for the following purposes during the 2000/2001: 1) hiring FCSR teachers for grade 3-4 combinations and eighth grade language arts classes, 2) hiring literacy coaches, 3) Standards Based Promotion professional development, 4) preparation for emergency credentialed teachers, 5) teacher recruitment, and 6) program evaluation.

The district made it a top priority to: 1) target eighth grade language arts classes during the upcoming year, 2) augment professional development in literacy instruction, and 3) provide additional support to non-credentialed teachers. FCSR program management emphasized that the main program goals were to reduce eighth grade language arts class sizes to 20:1 and to hire literacy coaches as a means of support to CSR teachers in primary grades. An additional goal was to develop support systems for emergency-permitted teachers receiving no other district or university support.

Evaluation of Federal Class Size Reduction in LAUSD

In an evaluation of Federal Class Size Reduction (FCSR) implementation, the Program Evaluation and Research Branch (PERB) found that, in terms of enrollment numbers, the District had reduced roughly 70% of its classes to the target 20:1 ratio as of fall 2002. In addition, the District has hired its target number of new literacy coaches to assist with the District's reading plan, targeting literacy instruction in kindergarten through grade 3. The District also began development of a program designed to lend support to emergency permitted teachers by conducting a needs assessment of teachers who were currently working on an emergency permit. The findings of the implementation of FCSR are discussed in detail in a report released by the branch in spring 2002.[1]

As the next step in the evaluation process, PERB set out to examine potential influences of class size reduction on teacher and student behavior in middle school classrooms. A team of trained observers was deployed to a sample of seventh and eighth grade English classrooms during the spring of 2002. The remaining sections of this report describe PERB's approach to examining effects of the LAUSD FCSR program at the classroom level starting with a brief description of previous research on class size reduction followed by an in-depth analysis of teacher-student interaction in various sample classrooms.

Previous Research on the Effects of Reducing Class Size

Examining the impact of class size reduction on student achievement has been approached in vastly different ways by U.S. states during the last couple of decades, each approach having been covered extensively in the literature on class size reduction (Achilles & Finn, 1999, 2000; Bohrnstedt & Stecher, 1999; Finn, 1997; Molnar, Smith, & Zahorik, 1998;

[1] The full text of this report is available online at http://www.lausd.k12.ca.us/lausd/offices/perb in the section titled 'PERB Reports'.

Nye, Hedges, & Konstantopoulos, 2000; Witte, 2000). Among these approaches is the now famous Student Teacher Achievement Ratio (STAR) project implemented in Tennessee during the late 1980s, which employed an experimental design in which thousands of K-3 students in varying school types (rural, urban, and suburban) were randomly assigned to small (fewer than 16 students in a classroom), regular (23 or more students), or a regular class with a teacher's aide (or paraprofessional). Resulting differences among the randomized groups on student achievement outcomes allowed researchers to infer a causal link between class size reduction and student achievement. The effects were shown to be stronger when students were placed in smaller classes from the beginning of their education, when the class size "treatment" was intensive (throughout the full day of instruction) and continuous (over multiple grade levels; Achilles & Finn, 1999; 2000).

The Wisconsin Student Achievement Guarantee in Education (SAGE) Program set out to examine the effects of reducing class size in the lowest performing schools during the late 1990s. Evaluation of the program employed a quasi-experimental design in which schools that had elected to participate in a class-size reduction program were compared to non-participating schools that were matched on a number of key variables (e.g., family income, school size, racial composition) to assess the effects of reducing early elementary classrooms to a class size of 15 students to one teacher (Molnar et al., 1998). Though the observed effects of class size on student achievement were not as strong in the SAGE study as those in the STAR project (presumably due to the quasi-experimental nature of the design), the study did report significant achievement gains for elementary school students having attended classes in program schools when compared to control schools (Witte, 2000, Molnar et al., 1998). It is important to note that in addition to reducing class sizes, schools participating in the SAGE program employed a

number of additional interventions including development of rigorous curricula in core subjects, increased staff development, and extended open hours for campuses.

Unlike the SAGE and STAR projects in which a fraction of the schools in the state were targeted for class size reduction, the California Class Size Reduction Program (CSR) enacted a statewide mandate to reduce all K-3 classrooms to a 20:1 ratio. From a research standpoint, this meant that there was no designated block of schools that could be used for comparison purposes; rather researchers relied on schools where program implementation occurred more slowly to examine potential class size effects (Bohrnstedt & Stecher, 1999). Though not as strong as the effects observed in the STAR and SAGE projects, some small achievement gains were observed for students having attended smaller classes in the CSR project (Fidler, 2001; Witte, 2000). The smaller impact observed in California could be attributed to implementation that was less structured, as well as to a number of additional challenges faced by California educators that were not issues for Tennessee or Wisconsin, such as the large percentage of English Language Learners and shortage of credentialed teachers in California (Bohrnstedt & Stecher, 1999). Additionally, whereas a reduced class size was defined as 15:1 in the STAR and SAGE projects, the targeted class size for reduced classes in the CSR project was 20:1, which was actually closer to the average size of comparison classrooms in the STAR study (Reichardt, 2001).

Despite the varying approaches by states to examine class size effects, program evaluations consistently have yielded findings that have gained fairly wide acceptance: smaller class sizes are linked to student achievement gains in early elementary grades even after students have returned to larger classes (Finn, 1997), the effects are more pronounced for lower achieving and minority students (Boozer & Rouse, 1995; Fidler, 2001; Finn, 1997), and are maximized when class size reduction programs are supplemented with professional development programs to enhance instruction quality within the smaller classes that are made available (Molnar et al.,

1998; Kirst et al., 1998). What remains somewhat of an open question is exactly what accounts for the link between smaller classes and student achievement (Reichardt, 2001). Researchers tend to agree that much of the observed effects of a small class size on student achievement may be attributed to teachers' increased time spent on activities related to instruction and less time on discipline and classroom management in smaller classes (Finn, 1997; Zahorik et al., 2000; Molnar et al., 1998; Reichardt, 2001). Though most studies on class size reduction to date have focused primarily on standardized test scores of students and secondarily on classroom practices (Witte, 2000), others using qualitative data derived from teacher and student interviews and classroom observations have yielded rich insight into ways in which class size affects classroom practice, thus increasing the potential for student achievement. Overall, such analyses have suggested that while teachers tend not to vary their teaching style when class sizes are reduced, the smaller number of students allows teachers to understand individual students' needs better and to tailor their instruction accordingly (Bohrnstedt & Stecher, 1999; Finn, 1997; Zahorik et al., 2000).

Achilles and colleagues (1995) examined what they termed "life in the 15:1 classroom" through teacher questionnaires and classroom observations in a Chapter 1 eligible school that targeted its primary grade classes for class size reduction. The target school and a comparison school were matched on most major school characteristics. Examining the data over the course of an academic year, researchers concluded that students in the 15:1 classes received more individual attention from the teacher due to more individual teacher-student communication in the smaller classes. Furthermore, teachers in the 23:1 classes showed decreased levels of control over classroom management by the end of the year, while such control in 15:1 classrooms remained stable. Although differences were observed between the two groups, they could have been confounded by the nature of the selection process used in this case. Additionally, as

evidenced by the SAGE evaluation (Molnar et al., 1998), there is sufficient within-group variation in classrooms in terms of student achievement to suggest that class size is only part of the equation, a factor that was not addressed in the Achilles et al. (1995) study.

Using measures that were similar to those used by Achilles et al. (1995), Zahorik and colleagues (2000) closely examined a subsample of classrooms targeted by the Wisconsin SAGE program and found that in smaller classrooms, focus on discipline and classroom procedures were less important than in larger classrooms. In addition, higher degrees of individualized instruction, in the form of individual instructional feedback and press toward academic achievement, were observed in smaller classrooms. Through additional analyses that focused on student achievement outcomes (aggregated scores on standardized tests), researchers concluded that higher student achievement was associated with teachers who had concrete and elaborate learning goals for their students; however, where class size became a factor was in the teachers' ability to implement these goals in a way that benefited the class as a whole. In smaller classrooms, teachers were able to use a "balanced" instructional style, in which they were able to deal with students one-on-one without losing the engagement of the remaining students, an opportunity that was not available to teachers in large classrooms.

How the Data Influence the Current Effort

With the information that has been presented thus far, it is important to consider the different kinds of challenges faced by school districts in different regions. While the information on heavily researched class size reduction programs should be useful to program developers in the Los Angeles Unified School District, a couple of points regarding the external validity of the studies discussed thus far should be clarified. First, the tightly controlled experiments used in the Tennessee project have shown a strong effect on student achievement while many other variables remain constant (Achilles & Finn; 1999; 2000; Finn, 1997). However, in the Tennessee

experiment, 100% of the teachers involved were fully credentialed, experienced teachers, and nearly all students were fluent in English, two factors that are not characteristic of large California school districts (Bohrnstedt & Stecher, 1999). In fact, researchers have speculated that by introducing many lesser qualified teachers into the pool some state initiatives resulted in weaker class size effects (Reichardt, 2001; Bohrnstedt & Stecher, 1999). Also important to note is that the STAR and SAGE projects included a number of program elements in addition to class size reduction, including the modification of curricula to maximize the benefits of smaller classes. Results have shown that while students benefit from smaller classes overall, these benefits are not realized in classrooms without a solid curriculum and high quality instruction (Johnson, 2000; Kirst et al., 1998). It is essential, therefore, that teaching quality be examined carefully in conjunction with class size in any research on potential class size effects.

Though a great deal of information has been made available by research on class size in elementary school grades, little has been done on class size reduction efforts in secondary classrooms, such as the current program being implemented in LAUSD. Several questions remain concerning the potential effects of class size on middle school students. Does the nature of teaching practices vary in smaller versus large middle school classrooms? How does smaller class size influence student learning in middle school classrooms? Assuming the presence of a class size effect in middle school classrooms, how can the effects be maximized?

Class Size Reduction in LAUSD Middle School English Classrooms: Analysis and Findings

The Los Angeles Unified School District elected to use Federal Class Size Reduction funds in part to reduce class sizes to a 20:1 ratio in eighth grade language arts classrooms. Research on the implementation of this local program showed that the District was about 70% successful in reducing classes to a 20:1 or below teacher-to-student ratio in terms of actual enrollment numbers during the spring 2002.[1] The present study sought to examine potential effects of reducing class sizes in eighth grade language arts classrooms by observing characteristics of teaching practice and student achievement gains in small and large classrooms.

Method

Sample Selection. A probability sample of twenty middle schools was selected using a stratification method developed by the Program Evaluation and Research Branch (PERB) to ensure adequate representation of schools in varying geographic regions, of varying enrollment sizes, and containing varying percentages of students who are English Language Learners. The selection of schools was completed in collaboration with several PERB projects using classroom observation methods in secondary schools in order to ensure that particular middle schools were not taking on an unfair burden by becoming the target of more than one classroom observation study. Within each selected school, a minimum of two teachers were selected at random from a complete list of teachers currently teaching at least one regular core English course for any of the three middle school grade levels (6 to 8) provided by the school. Additional English teachers were selected at some schools to ensure that at least two core eighth grade English teachers were selected at every school.[2]

[2] Since additional studies involved in the data collection collaboration targeted teachers without respect to grade, grade was not used as a sampling stratum during the first wave of selection; rather, additional teachers were selected using a random number generation technique where additional eighth grade English teachers were needed during the second wave of selection.

Procedure. A team of trained data collectors were deployed during the winter and spring of 2002 to observe the selected teachers on Tracks A and B of schools on multi-track calendars and during the spring only to observe teachers at schools on a LEARN or traditional calendar. A letter introducing the study and describing upcoming activities to be conducted by data collectors was sent to the principal of each sample school as well as to each teacher in the sample in advance of the deployment of data collectors. Observations took place during designated windows during which minimal testing and other non-instructional activities were scheduled to take place. Each data collector was assigned several of the participating teachers and was asked to contact each teacher on the list in advance to schedule a time for the observation to take place. Data collectors were encouraged to contact teachers in person during times when the teacher was not busy with instruction and identify a class period during which a typical lesson was to be given. In cases in which observers found it difficult to schedule an observation in advance, he or she was instructed to identify a number of potential class periods to observe and to notify the teacher in writing in advance of these periods so the teacher could alert the observer to any class periods during which regular instruction was not scheduled to take place (e.g., students were going to watch a film, attend a library training session or take a period-length quiz or exam).

Prior to each classroom observation, the classroom observer handed the teacher a sheet of paper containing two questions asking the teacher to describe his or her learning goals for the activities planned for that day and how he or she had planned to assess the extent to which these goals had been met. When the opportunity arose, the teacher articulated the answers verbally to the observer who noted the responses to the items *verbatim*. The observer then positioned himself in the classroom in such a manner that maximized his ability to note the behavior of the teacher and students throughout the class period while minimizing the potential for disruption. The typical classroom observation lasted from 50 to 70 minutes depending on the length of the

class period for that day (based on the school's bell schedule) and the start and ending points of activities.

After taking detailed notes of events that occurred during the lesson for that class period, the observer thanked the teacher for his or her participation and addressed any immediate questions the teacher might have had. Teachers later received a thank you card and a book for their classrooms as a token of appreciation for their participation. Within two days of the observation, observers produced a detailed narrative of the activities that took place during the lesson complete with a rough transcription of the dialogue between teachers and students during each of the activities. Observers also provided ratings of the observed lesson on seven dimensions including quality of learning goal implementation and overall level of student engagement.

Materials. Classroom observers in this study used a protocol created by the National Center for Research on Evaluation, Standards, and Student Testing at the University of California Los Angeles. The first part of the protocol includes a brief interview with the teacher about the lesson plan for the period to be observed and the learning goals for that lesson. Following the interview, the observer is instructed to obtain copies of handouts and texts that can be used to provide a detailed description of the activities taking place during the lesson. The observer then takes detailed notes on the behavior of the teacher and all students in the classroom for an hour-long period. The field notes are broken down into separate activities that take place during the lesson. An activity is defined as a period during the lesson when the characteristics of teacher-student interaction, lesson content, and instructional resources all remain the same for a period (each lesson usually includes 2-4 activities). Observers note when an activity transitions from one activity to the next, record the length of time for each activity, and take detailed notes of all behavior that occurs from the start to the end of the activity.

Following the observation, the observers construct a narrative of the classroom activities based on their field notes. Observers assign a rating of 1 to 4 to the lesson on several dimensions, including quality of learning goals, quality of goal implementation (classroom management), cognitive challenge of the activities, level of student engagement, quality of classroom discussion, and quality of instructional feedback, including examples from the field notes. The current study focuses on four of these dimensions on which classroom lessons are rated following a rubric (see Appendix A), including quality of goals, classroom implementation, discussion, and feedback, each of which will be discussed in detail below.

The quality of learning goals stated by a teacher receive a rating from 1 to 4, based on their clarity, specificity, and elaboration. A 1 rating is given when the teacher fails to articulate any learning goals, such as merely describing activities without explaining what the students are to gain from them. When goals are expressed but are too vague to be addressed in a lesson (e.g., improve writing skills) or are not perfectly clear, they are rated a 2. Goals that are clear and specific are rated as being of good quality (3 rating), and when they are elaborated upon and discussed in the context of a larger learning plan, they are considered to be of exceptional quality and rated a 4.

Goal implementation is also a teacher-centered rating and refers to the quality of the classroom management observed. A 1 rating is assigned to lessons during which there appears to be little organization, the teacher has little to no control over student activity, and a great deal of time is wasted. A 2 rating is assigned to lessons for which the quality of classroom management is sporadic, during which there are notable periods during the class when time is not used effectively. Classroom management is considered to be of good quality and rated a 3 when transitions between activities are reasonably smooth, and the teacher has control over student

activity for most of the period. Exceptionally managed classrooms in which transitions between activities are seamless, and not a minute of class period is used ineffectively are rated 4.

Discussion quality is rated as 1 for a lesson during which no discussion takes place, or when teacher-student interaction is minimal. When there is limited evidence of classroom discussion, or when a teacher attempts to engage student in discussion with uneven results, the discussion quality is rated 2. A lesson is rated 3 on discussion quality when there is sufficient student input for the conversation between students and teacher to approach a true discussion; students responses are elaborate and beyond mere known answers, or might build upon other student's responses. When the discussion represents a true discussion in which students are driving the discussion as much as the teacher, the lesson is rated 4 on discussion quality.

Instructional feedback is a complicated dimension, referring to the extent to which student progress toward learning what the teacher expects them to learn is made clear to them in a consistent manner. In classrooms when there is no feedback beyond procedural or feedback is inappropriate or punitive, the lesson is rated 1 on feedback. If there are some instances of instructional feedback, however limited, the lesson is rated 2. A 3 rating is assigned when examples of feedback students can incorporate into further learning are observed to be consistent throughout the lesson. The lesson is rated 4 on feedback when the feedback examples are of exceptionally high quality throughout the lesson, leaving no question on the part of students about what they are expected to learn from the lesson.

Analysis of Classroom Ratings in the Current Sample

Data collected from 55 middle school English classes were included in the present analysis. Forty-six of the classrooms in the sample were core eighth grade English classrooms, and the remaining nine were core seventh grade English classrooms. Twenty-five (or 45%) of the observed classrooms were led by non-credentialed teachers (four were listed as interns, seven were probationary, one had an out-of-state contract, and the remaining 13 were emergency permitted). The number of years of experience teaching in the Los Angeles District ranged from 3 to 36 years for credentialed teachers and from 1 to 4 years (except for one probationary teacher who had 14 years of experience listed and one emergency-permitted teacher who had 25 years listed). The sizes of the classes in the sample, defined by the actual number of students present during the observations ranged from 11 to 37 students, with the varying class sizes distributed fairly evenly across the sample. The class size of seventh grade classes ranged from 18 to 37 with a mean class size of 27, whereas eighth grade class sizes ranged from 11 to 36 with an average class size of 19. This pattern of class sizes reflects evidence of program implementation given that seventh grade English classrooms were not targeted for class size reduction by the FCSR program.

Based on previous research on the influences of class size on the opportunity for student learning (Molnar et al., 1998; Reichardt, 2001), of principle interest to the researchers conducting the present study was the quality of discussion in each lesson and the quality of instructional feedback. Upon examination of the sample classrooms and their ratings (as assigned by trained raters), the two dimensions were shown to be associated in that classes that were rated higher on discussion quality tended to be rated higher on instructional feedback as well. Moreover, lessons rated higher on discussion and feedback were taught by teachers who

articulated high quality learning goals, a finding that is consistent with those of Molnar et al. (1998).

Ratings of discussion quality generally were low across all classrooms in the sample, meaning that discussion in the observed classrooms generally did not achieve much depth or failed to engage students to participate actively in the discussion. Discussion quality was rated as good (higher than a 2 rating) in only seven of the classrooms in the sample. Of these classrooms, four were taught by fully credentialed teachers, and class size ranged from 14 to 21 students (all were eighth grade classrooms).

A similar pattern was identified for ratings of instructional feedback among the sample classrooms. Ratings generally were low across the sample (ranging from 1 to 3), with only nine of the sample classrooms obtaining a rating of 3, meaning that instructional feedback in most sample classrooms was either limited or unevenly dispersed throughout the lessons. Of the classrooms with high ratings on instructional feedback, six were taught by fully credentialed teachers and class size ranged from 13 to 24 students (again all were eighth grade English classrooms).

To examine potential relationships between class size and the quality of discussion and instructional feedback, the sample classrooms were divided into four groups according to the number of students present for each lesson. The breakdown of classrooms included the following ranges for each of the four groups: group 1 classrooms (N=8) had from 11 to 15 students, group 2 (N=24) had from 16 to 20, group 3 (N=15) had from 21 to 24 students, and group 4 (N=8) had from 25 to 37 students. The most salient pattern in the ratings to emerge once classrooms were arranged in this matter was the lack of variation in feedback and discussion scores in the group four classrooms. Whereas, there was variation in ratings in the three groups containing smaller classrooms, ratings in the largest classrooms were consistently low, lending support to the

hypothesis that larger class sizes hinder a teacher's ability to lead high quality discussion or provide feedback of consistently high quality. Important to note as well was the fact that quality of learning goals articulated by teachers varied similarly in each group including the group of largest classes, suggesting that class size was not a major factor in teachers' ability or tendency to do so. However, instances in which teachers articulated good quality learning goals while also providing good quality feedback and discussion during the lesson occurred only in classes with 21 students or fewer present.

Although there were 4 classrooms in which teachers' goals were rated as excellent (rating of 4), there were no instances of exceptionally high quality discussion or instructional feedback in the lessons observed for the present study as no classroom in the sample received a 4 rating on either of these dimensions. Though a limited number of these classrooms received 3 ratings (good quality) on these two dimensions, there was no discernable pattern of higher ratings being assigned to more experienced, credentialed teachers. However, these ratings were only found in smaller-sized classrooms, indicating a possible class size effect.

Of additional importance in the analysis of the classroom ratings was examination of the classroom management and student engagement dimensions of lesson quality for the sample classrooms. Previous research (e.g., Achilles et al., 1995; Finn, 1997; Molnar et al., 1998) has indicated that a portion of what accounts for greater potential for student achievement in smaller classrooms is the increased ability of a teacher in a small classroom to keep all students engaged, therefore spending more time on actual instruction and less time on procedural, administrative, or disciplinary matters. For this reason, we examined ratings assigned by classroom observers on the quality of the teacher's classroom management (effective use of time and control of classroom activities), and the percentage of students that appeared to be engaged throughout the class period.

A high level of student engagement was observed in general across the sample; 80% of the classes observed were rated 3 or 4 on student engagement, meaning that at minimum 85% of the students in each class were engaged throughout the lesson. Ratings of classroom management were generally high (3 or 4 ratings) in 60% of the classrooms, indicating that class time was used reasonably effectively by the majority of teachers in the sample. Also of note was the observation that classes that were rated highest in classroom management were also consistently rated high on student engagement (though the reverse was not true). With respect to class size, in the cases in which classes were rated as excellent on classroom implementation and student engagement, the number of students ranged from 17 to 22.

Summary. Careful examination of the ratings assigned to the 55 classrooms included in the present study yielded patterns that suggest a class size effect on a teacher's ability to provide high quality feedback and to engage students in high quality discussion. While ratings on these dimensions tended to vary within groups of smaller classes, they were consistently low in the group of classes having 25 or more students. In light of the hypothesis that quality teachers teach more effectively in smaller classrooms, it is arguable that a teacher's ability to provide high quality student-centered instruction in a middle school language arts classroom is diminished once the number of students exceeds 24 students.

While the classroom ratings allow us to make general comparisons among classrooms of different sizes with different teachers, they do not tell us a great deal about that which underlies the possible connections between class size and increased opportunity for student-centered instruction. Approaching this topic requires a more in-depth analysis of classroom observation data, including a look at the finer elements of instructional feedback and different types of teacher-student interaction.

A Closer Look at the Classroom Environment

A subsample of classrooms were identified and examined in greater detail to look at patterns of teacher-student interaction that could be influenced by classroom environment, i.e., instructor qualifications and class size. At the start of the process, groups of classes that received the highest ratings on the feedback dimension were identified and carefully studied by analysts who were trained to code observation notes for incidents of feedback and incidents of individualized instruction, while remaining blind to the experience level of the teachers and the size of the classroom. Analysts then wrote summaries of the activities in each classroom, complete with conclusions about the general quality of feedback and individualized instruction in the lesson, including examples from the narratives. The process was repeated for groups of classrooms with the lowest feedback ratings as well as some from the midrange (ultimately, 27 classrooms were included in the in-depth analysis). The summaries of classroom data were categorized according to the type of instructional environment in which the lessons took place, including credential status and experience of the instructor and class size, allowing analysts to determine whether patterns emerged in the quality of feedback or individualized instruction in different classroom environments. The results of these analyses are discussed in the sections that follow.

Instructional Feedback. The principal finding concerning instructional feedback is its absence from most observed classrooms. Feedback offered to students is usually of a generic or procedural nature (e.g., "be sure to put the date at the top of your handout") or could be classified as mere reinforcement (e.g., "good job" or "you're getting it"). Typical feedback patterns consist of teacher-led question-and-answer periods in which the teacher poses a question, students respond, and the teacher offers an indication of whether or not the student articulated the response that was sought. At many times, clear opportunities to elaborate on a correct or incorrect response are missed by the teacher, as he or she moves on with the next question,

creating a back-and-forth pattern that does not help communicate student progress toward learning goals. This kind of pattern was observed in most sample classrooms, including those led by experienced and fully credentialed teachers and in small classrooms.

The following example of missed opportunity for feedback is from a lesson that was rated a 1 on feedback. This classroom of 15 students was taught by a credentialed teacher with 6 years of experience. In this activity, the teacher was showing a popular film with prejudice as a major theme and would pause the film periodically to discuss scenes. During these instances, she offered mainly surface-level responses to the students' questions, without articulating to students the extent to which they were grasping the intended concepts:

(Example A)

Student: Why is he doing that?

Teacher: Because he is bored…he has a lot of time.

Student: Are all those kids Jew?

Teacher: No, those are German kids playing.

Student: So why are they there?

Teacher: Those are the children of the soldiers and the doctors.

Throughout this particular lesson, the teacher spent a lot of time working independently during the film. When the teacher did interact with the students, the feedback was mainly procedural, letting students know how to fill out worksheets, etc. to get full credit, and no time was spent discussing content. It is important to note as well that the learning goals articulated by this teacher were rated as lacking specificity and clarity in terms of what students were expected to grasp from the activities, a phenomenon that was observed in the present study to be associated with low quality feedback.

As discussed earlier in this report, a small number of lessons (9 classrooms) were rated high on feedback. In the following example, taken from a classroom that was rated 3 on feedback, a credentialed teacher with 7 years of experience led a class of 18 through a writing activity in which students were to create dialogues between fictional characters as a means of understanding character development. During the activity, the teacher circulated throughout the room offering praise to the students and stopping now and then to read a student's example and point out why it was satisfying the requirements of the assignment. The teacher made remarks about how a student's dialogue showed conflict, reiterating how dialogue is used to show conflict in stories:

(Example B)

Teacher (reading student work): 'one day, woman, you will have your comeuppance!' So, you see there is strong external conflict reflected in this dialogue. Pay close attention to this, because in our mythology assignment, ten percent of the grade will be on use of dialogue.

In addition, the teacher gave feedback on punctuation to individual students as she examined the work they were doing in class.

It is important to note that while instances of the former, lesser quality feedback (example A) was commonly observed in classrooms of all sizes with experienced as well as novice teachers; instances of the latter-mentioned, high quality feedback (Example B) occurred mainly in classes led by experienced instructors (though not always) in classes of 18 to 22 students. Instances of high quality instructional feedback (represented by example B) were never observed in classes of 30 or more students. When compared to the low quality, procedural feedback (represented by Example A) incidences of which occur on a much more frequent basis than higher quality feedback, the latter is clearly of greater use to students seeking information they

can use to incorporate into their own learning but also requires greater focus on the students as individuals rather than as a collective. Use of this type of feedback no doubt becomes exponentially more challenging as the number of students in the classroom increases. The next section focuses on patterns that reflect an individual student-focused approach to interacting with students as opposed to those reflecting a more teacher-centered, collective focus approach.

Individualized instruction. Previous research on the influence of smaller class sizes on student achievement have pointed to individualized instruction as an important link between the treatment and the outcome (Bohrnstedt & Stecher, 1999; Finn, 1997; Zahorik et al., 2000). This refers to the increased ability of teachers in smaller classrooms to understand the strengths and weaknesses of students individually, to understand idiosyncrasies in students that influence how they learn, and to tailor instruction accordingly so that the potential for achievement of all students in the classroom is maximized. The present analysis therefore included a component designed to assess sample classrooms for evidence of individualized or "student centered" instruction. Analysts carefully examined the subsample of classrooms looking for instances of student-centered instruction (see Appendix B). Tallied instances were examined in light of class size and teaching status of the instructor (including credential status and teaching experience).

As is the case with instructional feedback, instances of individualized instruction are scattered sporadically throughout the distribution of classrooms. More often than not, instruction was characterized as a one-size-fits-all approach, in which teaching practice appeared to be independent of students' needs and learning abilities. Following is an example from a classroom where a non-credentialed teacher with 3 years' experience led 30 students through 30-minute activity that entailed listing things in *do* and *don't* columns as a means of guiding students on writing a report:

(Example C)

Teacher: I know a lot of you are stressed about the five parts of fiction. [Teacher writes in *don't* column—"don't ignore punctuation."] I have been getting a lot of papers with one long continuous sentence with no punctuation. [Walks over to a punctuation chart that is hanging on the wall.] You can refer to this anytime, okay?

In this classroom, the observer noted that the teacher appeared to have a good rapport with students and could engage them effectively. However, as reflected in this activity, his instruction was oriented toward the collective class and not toward the students as individuals. He would frequently ask questions and not allow time for student response. There was very little interaction with students at all; rather, the teacher mainly lectured students with a style that did not require much knowledge of students' capabilities and could have been equally effective had there been twice as many students in the room.

In some classrooms, a more student-oriented style of instruction was observed, in which knowledge of the student's learning progress influenced the instructor's practice. In one example, a non-credentialed teacher with 3 years of experience led a class of 18 through a reciprocal reading exercise in which students read to one another in groups of 4 while the teacher walked from group to group, monitoring and checking homework assignments:

(Example D)

Teacher: [walks to a table where four students are reading to check homework.] Okay, José. Look at these three pages. It isn't telling me what happened in these three pages. When you draw a summary, you don't want to focus on only one element. [Teacher goes on to provide an example about how it would not make sense in a description of a day at school only to write about lunchtime.] So, with

each of these three pages, you're going to want to consider the main event in each of the three parts and summarize it on that page.

This teacher exhibited exceptional classroom management skills as she offered feedback to students one-on-one while simultaneously monitoring their reading activity in groups. Her behavior reflected a balanced approach to instruction in which she was able to engage individual students as well as the collective all at once.

The teacher-centered style of instruction, illustrated in example C above, was observed in most classrooms large and small and by teachers of varied years of experience and credential status. The latter style illustrated in example D, that was more tailored to individual students, was observed only in some smaller classrooms but still appeared to be independent of teacher status or experience. Though not observed frequently, the latter, type-D instruction was equally likely to be exhibited by experienced and novice teachers but only in classrooms having a manageable number of students, suggesting that larger class sizes serve to inhibit this student-centered approach. Observers of larger classrooms (more than 25 students) commented frequently on the 'crowded feel' of the classrooms as well as the fact that while teachers would attempt to engage students in one-on-one conversation, remaining students would easily lose their focus and become disengaged in the activity. The following is an excerpt from an observer's narrative describing a silent reading activity led by a credentialed teacher with 14 years of experience in a class of 25 students:

(Example E)

"after the teacher helps each of the students log onto the computer, she circulates the class making sure all the students are reading in their books. As the teacher tends to questions, many of the students are not on task. Some students are engaged in side conversations and others seem distracted by those around them. At

times the teacher calls on some students to be quiet, and though the class does quiet down, at least 1/3 of the class are not reading."

In larger classrooms, it was typically found that while teachers engaged in one-on-one conversations with students, the number of remaining students in the classroom that were clearly off task would increase rapidly, a pattern that is consistent with Zahorik and colleagues' (2000) finding that they labeled an un-balanced, teacher centered approach.

Based on the in-depth analyses of classroom behavior, we found that instructional feedback offered by teachers is limited overall, taking place mainly in portions of the lesson but never consistent throughout. While the rare instances of higher quality feedback appears to surface only in smaller classrooms, it is of a nature that is too infrequent to allow any conclusions to be drawn about the extent to which it is influenced by instructor qualifications or class size. When the analysis focused on student-centered versus teacher-centered instruction, however, a clearer pattern emerged, with larger classes including only the latter teacher-focused instruction, while both styles were observed in smaller classrooms.

A Look at Three Types of Classrooms. Three 'typical' kinds of classrooms emerged in the qualitative analysis conducted as part of this study. First, there were smaller classrooms in which instances of high quality feedback and student-centered instruction occurred; second were smaller classrooms in which feedback was of low quality and student-centered instruction did not occur; third were large classrooms in which instances of instructional feedback were rare and no student-centered instruction occurred. The following section presents examples of each of these three types of classrooms by showing descriptive accounts of each and describing how it relates to the variables of interest in this study.

The first example is of a small classroom, where feedback ratings were high (3 on the feedback scale) and evidence of student-centered instruction was observed (see Table 1). The

learning goals articulated by this teacher were rated a four, because the teacher clearly delineated the goals for each of the three activities constituting the lesson that was observed. She elaborated on each of the goals, explaining in clear language what she meant and how the activity would help her achieve each goal. The narrative account of the activities played out like a script of what the teacher had planned on doing. The teacher spent noticeably little time on discipline, and when she did deal with disciplinary matters, she was able to do it swiftly without losing the engagement of the remaining students. The tasks required students to generate original ideas while staying within the constraints of Standard English grammar and mechanics.

The most noticeable quality of this lesson was the teacher's ability to give individual feedback while simultaneously instructing the class as a whole, an accomplishment that could not reasonably be achieved had there been seven to ten additional students in the classroom. This pattern of teacher-student interaction was the least frequently observed in the sample of classrooms, but it does represent one of the three main types of classroom environments observed in this sample. As expected, this instructional style was observed only in classrooms with fewer than 23 students. While most of the teachers observed using this style were fully credentialed, some were non-credentialed teachers, and years of teaching experience appeared to be unrelated to the style of instruction used.

The second type of classroom that was commonly observed was the small classroom rated low on instructional feedback and having little to no evidence of student-centered instruction. The example in Table 2 shows a class of 13 students led by a fully credentialed instructor also with 7 years of experience. The goals articulated by this teacher were rated a 2 because they consisted mainly of a description of the activities and procedures and did not clearly articulate that which the teacher expected the students to gain in terms of knowledge or skills. The feedback given in the lesson was rated a 2, because the teacher's interaction with

students did not extend beyond a quiz-type instructional format in which students gave short responses to known-answer questions and there was never an instance in which the teacher articulated to the students the extent to which they were progressing toward the learning goals. At some points, the teacher circulated the room as students worked independently on their assignments, but individual feedback did not relate to the content as much as it did to procedures and often was too vague for students to use to incorporate into further learning. When the teacher interacted with students on an individual basis, the teacher sometimes would prompt the student to "look it up" or "think about it" which is a style that arguably encourages students to engage themselves independently but is lacking in terms of the teacher's building on his knowledge of the student's abilities and learning styles.

Despite the extraordinarily small number of students in the class, the teacher used the one-size-fits-all approach typically observed in sample classrooms. This teacher-centered style of instruction used in a small classroom was the most common classroom type to emerge from these data and also appeared to be unrelated to teacher qualifications. The instructional style used here was similar to that observed in all large classrooms with a key difference being less time spent on administrative and disciplinary matters as is to be expected based on previous research on qualitative differences between smaller and larger classrooms (Achilles et al., 1995; Zahorik et al., 2000).

The third type of classroom to emerge from these data was the large classroom with low feedback ratings and no student-centered instruction. Table 3 shows an example of a classroom of 30 students led by a credential teacher with 4 years of experience. The learning goals articulated by this teacher were rated a 2 because they did imply that the students were to focus on a particular list of words and know how to spell them, which was in line with a state standard, though the teacher did not clearly articulate this. The teacher focused mainly on activity for

activity's sake and barely touched upon that which he hoped for the students to gain from this lesson. This teacher talked a great deal throughout the lesson using a teacher-centered style of teaching, a pattern that is characteristic of all classrooms in the sample having 25 students or more. Although there was a great deal of back-and-forth interaction between students and the teacher, there were no incidents of students' receiving information on their progressing toward the learning goals beyond 'right' or 'wrong' responses from the teacher; therefore, this lesson was rated 1 on instructional feedback. Likewise, as is characteristic of all larger classrooms in the sample, there were not instances of a student-centered instructional style. This pattern of teacher and student behavior also was unrelated to teacher qualifications.

Conclusion

The implementation of class size reduction in middle school classrooms as part of LAUSD's Federal Class Size Reduction program was not accomplished in a manner that allowed systematic comparisons between classrooms targeted by the program and non-targeted classrooms. Although in aggregate, eighth grade English classrooms were smaller than seventh-grade English classrooms, variation in class size for each grade was too great to allow for raw comparisons between the two groups. Therefore, the classrooms included in the present study were grouped according to size without respect to grade level and according to teacher qualifications (including credential status and years of experience) to examine the potential influences of each variable on the quality of interaction between teachers and students. Findings do not support the notion that teacher qualifications make a difference in the type of instructional feedback, discussion quality, or level of individualized instruction that takes place in the classroom but do suggest that higher quality instructional feedback and other teaching practices that rely on knowledge of individual students is only possible in smaller classrooms, a finding

that is consistent with research that has been done in elementary classrooms (Achilles et al., 1995; Molnar et al., 1998; Zahorik et al., 2000).

The present work also supports the notion that reducing class size, in and of itself, does not have a direct impact on teaching practice in that the nature of teacher-student interaction was not clearly different when small and large classrooms are compared at the aggregate level, also consistent with research on elementary grade class size (Bohrnstedt & Stecher, 1999; Zahorik et al., 2000). When examining the links between class size reduction and student achievement, researchers have emphasized that class size must be examined in conjunction with the nature of the curriculum and teaching practice (Johnson, 2000; Kirst et al., 2000). Indeed, research on elementary class size reduction has shown stronger effects when the programs included professional development or other similar components that were deigned to have an impact on practice in the classroom (Reichhardt, 2000; Molnar et al, 1998; Witte, 2000). Given the absence of supplemental programs designed to influence teaching practice in eighth grade classrooms in the Federal Class Size Reduction Program as well as the wide dispersion of class sizes in the sample distribution of classrooms, it is not surprising that instructor behavior varied little over all in different sized classrooms in the present study.

While the present research provides some insight into that which can be achieved more easily by instructors in smaller classroom environments, it did not directly address student outcome measures. Future research should incorporate a measure of middle school student gains in achievement over the course of an academic year in observed classrooms to see if the hypothesized link between variations in instructor practice found in smaller classroom environments and student achievement is supported. Additionally, the small number of large classrooms (25 or more students per classroom) included in the present study was not anticipated; thus purposive sampling targeting more large classrooms is recommended for future

research examining instructor practice and class size for greater insight into the challenges faced by teachers and students in larger classrooms. Finally, conclusions drawn in the present study called for some speculation in the extent to which class sizes influence teachers' approaches to interacting with students. It is recommended that an additional component be developed that includes a survey of middle school teachers on their approaches to teaching students in different sized classes to examine the extent to which these conclusions are valid.

References

Achilles, C. M., & Finn, J. D. (1999). Some connection between class sizes and student successes. Paper presented at the Conference of the Center for Developmental Learning. New Orleans, LA.

Achilles, C. M., & Finn, J. D. (2000). The varieties of small classes and their outcomes. Paper presented at the Combined National Invitational of the U.S. Department of Education and Temple University's Laboratory for Student Success, Washington, DC.

Achilles, C. M., Kiser-Kling, K., Aust, A., & Owen, J. (1995). Success starts small (SSS): A study of reduced class size in primary grades of a fully Chapter1 eligible school. Paper presented at the Annual Meeting of the American Research Association (San Francisco, CA, April, 1995).

Bohrnstedt, G. W., & Stecher, B. M. (2000). Class size reduction in California 1996-1998: Early findings signal promise and concerns. [Online]. Available: http://www.classsize.org.

Boozer, M., & Rouse, C. (1995, June). Intraschool variation in class size: patterns and implications. (Working paper #344). Washington, DC: national Bureau of Economic Research, industrial Relations Section.

California Department of Education (CDE). (1999). 1999-2000 Title VI Guidance: Federal Class Size Reduction. [On-line]. Available: http://www.cde.ca.gov/classsize/federal/sy9900/guidance.htm

Fiddler, P. (2001). The impact of class size reduction on student achievement. [On-line]. Available: http://www.lausd.k12.ca.us/lausd/offices/perb/.

Finn, J. D. (1997). Class size: What does research tell us? Spotlight on student success. Available from the Laboratory on Student Success, 1301 Cecil B. Moore Ave., Philadelphia, PA 19122-6901.

Johnson, K. A. (2000). Do small class sizes influence academic achievement? What the National Assessment of Educational progress shows. A report on the Heritage Center for Data Analysis. Heritage Foundation, Washington, DC. [on-line]. Available: http://www.heritage.org.

Kirst, M., Bomstedt, G., & Stecher, B. (1998). A plan for the evaluation of California's Class Size Reduction Initiative. Paper presented at the Annual Meeting of the American Educational Research Association (San Diego, CA, April 1998).

Molnar, A., Smith, P., & Zahorik, J. (1998). Evaluation results of the Student Achievement Guarantee in Education (SAGE) Program, 1997-98. [On-line]. Available: http://www/uem.edu/SOE/centers&projects/sage/.

Nye, B., Hedges, L. V., & Konstantopoulos, S. (2000). The effects of small classes on academic achievement: The results of the Tennessee class size experiment. American Education Research Journal, 37, 123-151.

Reichardt, R. (2001). Reducing class sizes: Choices and consequences. Policy brief, Mid-Continent Research for Education and Learning. [On-line]. Available: http://www.mcrel.org.

Witte, J. F. (2000). Reducing class size in public schools: Const-benefit issues and implications. In S. W. M. Laine, & J. G. Ward (Eds.). Using what we know: A review of the research on implementing class size reduction initiatives for state and local policy makers. North Central Regional Educational Laboratory: Oak Hills, IL.

Zahorik, J., Molnar, A., Ehrle, K., & Halbach, A. (2000). Smaller classes, better teaching? Effective teaching in reduced-size classes. In S. W. M. Laine, & J. G. Ward (Eds.). Using what we know: A review of the research on implementing class size reduction initiatives for state and local policy makers. North Central Regional Educational Laboratory: Oak Hills, IL.

Table 1. Summary of a Small Classroom Rated High on Feedback and Student Centered Instruction.[a]

ID = E802S32 – Eighth Grade English, second semester **Teacher Qualifications:** Fully credentialed; 7 years of experience **Number of students present:** 18 **Learning Goals given by teacher:** "Concerning the standards, the students are examining conflict as an element of a story. Their major project, a narrative, requires incorporating all the elements of a story including conflict. I also covered an important goal-punctuation. This standard (Language conventions 1.5) hones in on correct use of apostrophes, quotation marks, and end marks in dialogue. As further objectives, the students learned to revise speaker tags with direct quotations in a story and to rewrite dialogue more naturally. With regards to external conflict, the students analyzed a painting to determine the external conflicts that existed and to then be able to apply their knowledge by creatively writing a dialogue about the situation. Writing prompt stirs the imagination."
Summary of lesson activates: The first activity in this lesson was a warm up prompt where students are asked to correctly punctuate a sentence of dialogue that is displayed on the board. The teacher circulates during this six-minute activity. At the end of the activity, the teacher punctuates the dialogue on the board. The teacher asked students how many had perfect papers, and two students raised their hands. In the second activity, students create their own dialogue for a classical painting. In a prewriting activity, the students were asked to describe the scene, using possible dialogue exchanged between the characters and other details of the painting. This was done in a teacher-led discussion rich with open-ended questions. For example: Miss Small: "Let's describe the Situation. Anyone?" Sally answers: "The old lady is paying something to the guys; the old lady on the left is stealing something from the guy." Miss Small: "Chuck, do you have anything to add?" Chuck: "It looks like the man is scared ands she is afraid." Miss Small restates: "a murder and mayhem situation…Let's look at what they're wearing. Anything similar? Colors?" After the pre-writing activity, students were asked to complete their dialogue while the teacher circulated asking questions, offering encouragement and reading aloud student dialogues to reinforce those that were correctly completing the task. In the final activity the teacher focused on a worksheet the students had received the day before, and several students were asked to revise sentences by adding dialogue tags that reflected the character of the speaker. This activity was initially worksheet-focused but transitioned into presentations where the teacher would periodically read student examples and offer feedback. For example, a teacher asked a student to read her work, and comments, "I didn't hear natural sounding language. Remember you are using idioms here, these are words that might be contractions like *don't* or slang words like *cool* or *diss*." At the end of the activity, the teacher reminded students that the next exercise would have to do with capitalization and proofreading and that they could start on it for homework.

[a]names of teacher and students changed for purposes of anonymity.

Table 2. Summary of a Small Classroom Rated Low on Feedback and Containing No Student-Centered Instruction.[a]

ID = E802S45 – Eighth Grade English, second semester **Teacher Qualifications:** Fully credentialed; 7 years of experience **Number of students present:** 13 **Learning Goals Given by Teacher:** "Students are going to be writing a research paper in 5-paragraph essay form. They will be doing pre-writing by creating a formal outline and bibliography. It gives them the format and practice to collect information for their bibliography. Today they will lean to correctly write a formatted bibliography. They will write 5 citations from 5 different sources."
Summary of lesson activates: As a typical opening for an 8th grade English class, the first activity noted in this narrative was a standard rote activity where students copied down the agenda from the board allowing time for the teacher to collect the homework. This activity has also been used as a lesson in following directions, however, in this case the teacher did not spend an extended amount of time on this copying exercise and as noted by the observer quickly collected the homework and moved into activity number two. In activity number two, students were asked to complete a handout with the teacher's instruction on text references and the format for citing references properly. The handout entitled, "Bibliography Entry Formats" prompted a brief discussion on opinions versus facts and how to reference certain sources. Questions are about technical issues and are restricted to known-answer questions: Mr. Swift: O.k. then we have an anthology (he holds up a book as an example of an anthology). This is an anthology. It's edited by someone, and then see listings of the author, title, editor, publication info and page numbers. (The teacher reads the example from the handout.) What's the name of the publishing house? Shelly: Cheltenham Mr. Swift: and what year? George: 1992 Mr. Swift: Next is an article a reference book. It's the same as an anthology but you omit the page numbers. O.K. Next, a newspaper article. This activity transitioned into the next without much time wasted and soon students were completing a bibliography entry assignment using references provided by the teacher. The teacher walks around assisting students, offering extended instruction and answering questions when necessary. Mr. Swift: If you don't find an author- it's anonymous. When you're writing a regular bibliography- you don't write Novel or Newspaper- you just write the information. Alice: (Student holds up a book-) Is this a novel? Mr. Swift: No- what's missing? - Figure it out. Follow the sample (after observing a student's work) after each section - you need a period. If it's in quotes around the title where does the period go? Rodney: Left side of the end quote. Mr. Swift: Yes- left side of end quote (he demonstrates on board).

The activity continued this way with occasional student-teacher interaction for a couple more minutes. Following this, The students continued working independently for the next few minutes - while the teacher worked at his desk. Most seem committed to getting assignment done - a few display less effort). Teacher speaks to the class right before the bell rings:

Mr. Swift: We won't finish in time so we will complete it on Monday- for 15 minutes on Monday.
Charlene: What about homework?
Mr. Swift: Finish your outlines and start writing an essay from the outlines.
Mr. Swift: say "thank you, teacher, for giving us the opportunity to learn."
All students: (Playing along) Thank you, teacher, for giving us this opportunity to learn.

[a]names of teacher and students changed for purposes of anonymity.

Table 3. Summary of a Large Classroom Rated Low on Feedback and Having No Evidence of Student-Centered Instruction.[a]

ID = E702S15 – Seventh Grade English, second semester
Teacher Qualifications: Fully credentialed; 4 years of experience
Number of students present: 30

Learning Goals given by teacher: "[written down]1. Vocabulary: "Spelling Unforgivables (cont.)" list of words M.S. students must know and spell and use correctly (CA Standard). 2. Discuss new report (Science Fair Project) due dates: note cards, rough draft, final draft/cover sheet/bibliography, visual product."

Summary of lesson activates: The lesson begins with 7 minutes of sustained silent reading (SSR). During the activity, the teacher waits near another classroom for another teacher that has not arrived. She takes attendance aloud. In the mean time, she has one of the students monitor the rest of the class while she goes outside. She says to them, "Okay, let's go. Let's go! Okay, you guys are 7th graders now. If I have to watch another classroom for a few minutes, you guys need to behave yourself. Okay, this Friday I have some more treats for you guys." The T has a system of rewards and consequences using fake money can be used to purchase treats that the she brings in every Friday.

The next activity is centered on "Spelling Unforgivables." The English department has come up with a list of words that all middle students must know how to spell. If any words from this list are misspelled, the teacher is supposed to mark down the student down one letter grade. This teacher does not adhere to that grading scale but still insists that her students must know the words regardless. The words written on the board are a continuation of yesterday. The teacher goes over each word with the students, calling out individual students to read aloud and define or classify the words. The teacher stands behind the classroom while doing this activity. At least a third of the students are off task during this activity. The activity goes on for about 35 minutes with teacher quizzing students on the correct distinctions among homophones stopping periodically to reprimand boys giggling in the back at double entendres.

Mrs. Glib: Next word, number 19 (*separate*). Frieda, would you read it aloud? [Frieda responds] Remember, it has a "rat" in it. That's how I remember the word. Okay, next word.
Frieda: *Through* and *threw*
Mrs. Glib: What are these words called?
Multiple Students: homophones [Some SS begin to giggle in the back.]
Mrs. Glib: Okay, we've talked about the word homosexual. Boys, let's be a little mature. Homo is a prefix so you will be hearing it in many different words. What does *wear* mean? Joesph?

The teacher talks about the students' new project with the upcoming Science Fair. The students are to write a 5-paragraph research essay on a topic of their choice. The teacher reviews the format of the 5-paragraph essay and what sort of projects the students can work on. She shows the class some of the books that the can go through to get ideas for their projects. A number of students are talking while all of this is happening.

During the final 15 minutes, the teacher instructs the students on how to prepare proposals for

science projects using a 5-paragraph format. The teacher reviews the format, which includes five parts to an essay, including 1 paragraph on introducing the topic, including a hypothesis, three paragraphs on information, and 1 paragraph on a conclusion. The teacher spends the remainder of the class period going over the requirements of the assignment stopping frequently to discipline students for talking, asking them to hand in bills of the fake money they receive for talking out of turn. The bell rings, and the teacher makes it a point to dismiss the students independently of the bell.

[a]names of teacher and students changed for purposes of anonymity.

Appendix A:

Rubrics Used to Rate Lesson Quality in Observed Classrooms

Dimensions from CRESST Observation Protocol

Rating Dimension	1	2	3	4
Quality of learning goals.	Goals are not focused on student learning, goals are not clear and explicit in terms of what students are to learn from the assignment OR all goals may be stated as activities with no definable objective	Goals are somewhat focused on student learning. Somewhat clear and explicit in terms of what students are to learn from the assignment. May be very broadly stated (e.g. reading comprehension).	Goals are mostly focused on student learning. Goals are mostly clear and explicit in terms of what students are to learn from the assignment.	Goals are very focused on student learning. Goals are very clear and explicit in terms of what students are to learn from the assignment. Additionally, all the goals are elaborated.
Quality of classroom discussion.	A discussion does not take place at all or interaction between teacher and students is predominantly recitation style, with teacher mediating all questions and answers. The teacher's questions are close-ended, known-answer questions.	Teacher makes some attempt to engage students in true discussion with uneven results. Some of the teacher's questions are open-ended (e.g., "What was remarkable about the story?" "What did you like about that character? ") There may be some attempt to have students respond to other students or invitations to comment about a book.	Most of teacher's questions are of high quality. Adequate time is available for students to respond and teacher activity solicits student input (e.g., "Tell me why you think that." "Can you say a little more about that?"). Teacher builds on student contributions.	Students initiate topics and make unsolicited, on-topic contributions. Students formulate many questions. Teacher's questions are uniformly high quality with adequate time for students to respond. Teacher builds on students' contributions, and students build on each other's contributions.
Quality of instructional feedback.	Feedback is either not provided or is of uniformly poor quality. Feedback may be inappropriate (e.g., humiliating, punitive). Feedback does not support instructional goals.	Feedback is inconsistent in quality. Elements of high quality may be present during a small portion of the observation or minimally informative feedback that only somewhat supports the instructional goals may be given throughout the observation.	Feedback is mostly high quality (e.g., expectations are made explicit to students.) Feedback mostly supports the instructional goals. It is provided either consistently throughout the observation period or in a focused way during a portion of the period.	Feedback is uniformly high quality. Provision is made for students to use feedback in their learning. Feedback fully supports the attainment of the instructional goals.
Quality of Goal Implement-ation.	The learning activity is not effectively implemented (e.g., the class is disorganized, the teacher lacks control).	The learning activity is somewhat effectively implemented (e.g., in general, the class is organized, but there may be unchecked incidents of disorder or wasted time.	The learning activity is effectively implemented (e.g., transitions are smooth, teacher has control of class).	The learning activity is exceptionally well implemented (e.g., transitions are seamless, almost no class time is wasted).

Appendix B:

Rubric Used to Assess Instructional Orientation

Teacher-Centered Instruction	Student-Centered Instruction
Teacher is using a one-size-fits-all approach. The instruction style is independent of individual students' diverse instructional needs. As the focus of the teacher shifts from large groups to small groups or individuals, the engagement levels of students fluctuates. Teacher teaches in a 'quiz' style format where all questions are known-answer, without allowing time for students to elaborate or reflect on discussion. Examples include: - Teacher asks questions and move forward without allowing student input. - Teacher relies heavily on structured drills and activities that encourage behavior and thinking as a group as opposed to individuals (e.g., a drill in which students are meant to clap in rhythm as they pass in homework assignments). - Teacher passes up a clear opportunity for individual feedback (e.g., a student presents his or her own work, and the teacher does not offer feedback in favor of moving to the next student).	Teacher appears to tailor instruction to meet individual student needs. Teacher instructs using a style that is dependent on his or her knowledge of students' individual characteristics, particularly ways in which students learn more effectively. Teacher appears to be able to maintain student engagement levels even as focus shifts from large groups to small groups or individual students. Examples include: - Teacher incorporates known information about student's learning history into feedback (e.g., "you followed the five-sentence format better this time than in the last assignment). - Teacher identifies individual student characteristics and incorporates the information into instruction (e.g., you are good at using real life examples as themes in your writing, try to apply that in this paragraph.") - Teacher cites individual student work and shows how it fits into a rubric assessment.

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

☑ This document is covered by a signed "Reproduction Release (Blanket) form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").